

CLAIMS

What is claimed is:

1. A sheet laminate entry material for drilling a printed circuit board,

comprising:

5 a metal sheet;

a base sheet;

said base sheet coupled to said metal sheet with an adhesive; and

a particulate lubricant homogeneously disbursed throughout said adhesive.

- 10 2. An entry material as recited in claim 1, wherein said adhesive comprises epoxy resin.

- 15 3. An entry material as recited in claim 1, wherein said particulate lubricant comprises organic graphite homogeneously dispersed throughout said adhesive.

4. An entry material as recited in claim 1, wherein said particulate lubricant comprises polyethylene glycol.

- 20 5. An entry material as recited in claim 3, wherein said lubricant comprises approximately 0.1% to approximately 10% by weight of graphite homogeneously dispersed throughout the adhesive.

6. An entry material as recited in claim 5, wherein said graphite has a diameter of approximately 3 microns to approximately 50 microns.

5 7. An entry material as recited in claim 4, wherein said lubricant comprises approximately 0.1% to approximately 10% by weight of polyethylene glycol homogeneously dispersed throughout the adhesive.

10 8. An entry material as recited in claim 5, wherein said polyethylene glycol lubricant has a molecular weight from approximately 600 to approximately 4000.

15 9. A sheet laminate entry material for drilling a printed circuit board, comprising:

a first metal sheet;

a second metal sheet;

a fibrous core;

said fibrous core coupled to said first metal sheet with an adhesive;

said fibrous core coupled to said second metal sheet with an adhesive; and

a particulate lubricant equally disbursed within said adhesive.

20 10. An entry material as recited in claim 9, wherein said adhesive comprises epoxy resin.

11. An entry material as recited in claim 9, wherein said particulate lubricant comprises organic graphite homogeneously dispersed throughout said adhesive.

5 12. An entry material as recited in claim 9, wherein said particulate lubricant comprises polyethylene glycol.

10 13. An entry material as recited in claim 11, wherein said lubricant comprises approximately 0.1% to approximately 10% by weight of graphite homogeneously dispersed throughout the adhesive.

14. An entry material as recited in claim 13, wherein said graphite has a diameter of approximately 3 microns to approximately 50 microns.

15 15. An entry material as recited in claim 12, wherein said lubricant comprises approximately 0.1% to approximately 10% by weight of polyethylene glycol homogeneously dispersed throughout the adhesive.

20 16. An entry material as recited in claim 12, wherein said polyethylene glycol lubricant has a molecular weight from approximately 600 to approximately 4,000.

17. A sheet laminate entry material for drilling a printed circuit board,
comprising:

a metal sheet;

a paper sheet;

a fibrous core;

said fibrous core coupled to said metal sheet with an adhesive;

said fibrous core coupled to said paper sheet with an adhesive; and

a particulate lubricant disbursed within said adhesive.

18. An entry material as recited in claim 17, wherein said adhesive comprises
epoxy resin.

19. An entry material as recited in claim 17, wherein said particulate lubricant
comprises organic graphite homogeneously dispersed throughout said adhesive.

20. An entry material as recited in claim 17, wherein said particulate lubricant
comprises polyethylene glycol.

21. An entry material as recited in claim 19, wherein said lubricant comprises
approximately 0.1% to approximately 10% by weight of graphite homogeneously
dispersed throughout the adhesive.

22. An entry material as recited in claim 19, wherein said graphite has a diameter of approximately 3 microns to approximately 50 microns.

23. An entry material as recited in claim 20, wherein said lubricant comprises approximately 0.1% to approximately 10% by weight of polyethylene glycol homogeneously dispersed throughout the adhesive.

24. An entry material as recited in claim 20, wherein said polyethylene glycol lubricant has a molecular weight from approximately 600 to approximately 4000.

25. A sheet laminate exit material for drilling a printed circuit board, comprising:

a metal sheet; and

a baseboard;

said baseboard bonded to said metal sheet with an adhesive;

said baseboard including a particulate lubricant.

26. An exit material as recited in claim 25, wherein said adhesive is an epoxy resin.

27. An exit material as recited in claim 25, wherein said particulate lubricant of said baseboard comprises graphite at approximately 1 percent by weight to approximately 10 percent by weight.

5 28. An exit material as recited in claim 25, wherein said particulate lubricant of said baseboard comprises polyethylene glycol at approximately 0.1 percent by weight to approximately 10 percent by weight.

10 29. An exit material as recited in claim 28, wherein said polyethylene glycol lubricant in said baseboard has a molecular weight from approximately 600 to approximately 4,000.

15 30. An exit material as recited in claim 25, wherein said adhesive further comprises a particulate lubricant.

31. An exit material as recited in claim 30, wherein said particulate lubricant comprises organic graphite homogeneously dispersed throughout said adhesive.

20 32. An exit material as recited in claim 30, wherein said particulate lubricant comprises polyethylene glycol.

33. An exit material as recited in claim 31, wherein said lubricant comprises approximately 0.1% to approximately 10% by weight of graphite homogeneously dispersed throughout the adhesive.

5 34. An exit material as recited in claim 31, wherein said graphite has a diameter of approximately 3 microns to approximately 50 microns.

10 35. An exit material as recited in claim 32, wherein said lubricant comprises approximately 0.1% to approximately 10% by weight of polyethylene glycol homogeneously dispersed throughout the adhesive.

15 36. An exit material as recited in claim 32, wherein said polyethylene glycol lubricant in said adhesive has a molecular weight from approximately 600 to approximately 4,000.

20 37. An exit material as recited in claim 25, further comprising a second metal sheet bonded to said baseboard.

38. An exit material as recited in claim 25, further comprising a paper sheet bonded to said baseboard.

39. A method for drilling a printed circuit board, comprising:

providing an entry material, said entry material comprising a first metal
sheet bonded to a core and a second metal sheet bonded to a core, said metal sheets
bonded with an adhesive including a particulate lubricant;

providing an exit material, said exit material having a metal sheet and a
baseboard bonded to said metal sheet with an adhesive, said baseboard including a
particulate lubricant;

placing a work piece between said entry material and said exit material; and
drilling through said entry material, said work piece and said exit material.

40. A method as recited in claim 39, wherein said exit material further
comprises a particulate lubricant within said adhesive.